INERTIAL CONFINEMENT FUSION
Lawrence Livermore National Laboratory

Monthly Highlights

November 1997

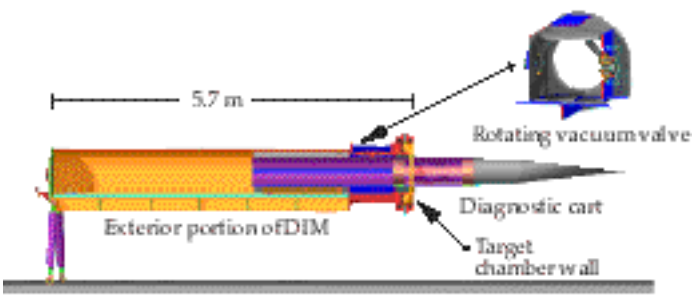
UCRL-TB-128550-98-2

NIF Construction on Target. Activities for the construction and site preparation (see below) of the National Ignition Facility (NIF) remain on target this month for completion in 2003. Five construction packages have been awarded to date; the remaining three will be awarded in the coming year.

An aerial view of the NIF site (November 1997).

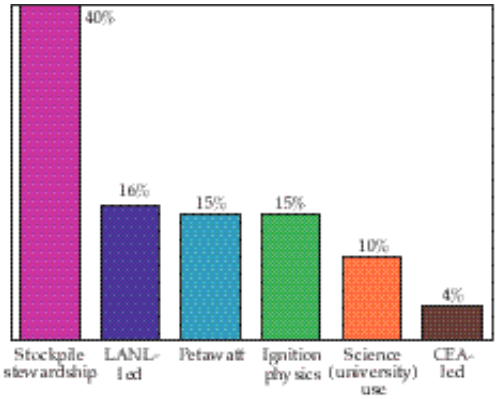
Diagnostic Instrument Manipulator (DIM).

The DIM being designed for NIF will allow insertion of a variety of diagnostics into the target chamber while under vacuum. This design is part of the collaborative effort between the ICF Program and the Atomic Weapons Establishment (AWE) in England. Engineers from AWE presented their Title II 35% design review of the DIM to the NIF project in November, and the design satisfied all of the requirements. AWE is planning to construct a half-length prototype of this design and ship it to LLNLin late FY98 for testing and evaluation. We are also evaluating the possibility of testing the prototype DIM on the Omega laser at UR/LLE. To facilitate exchange of target diagnostics between other laser fusion facilities, CEAin France is considering using the AWE DIM design for their LILand LMJ laser facilities.



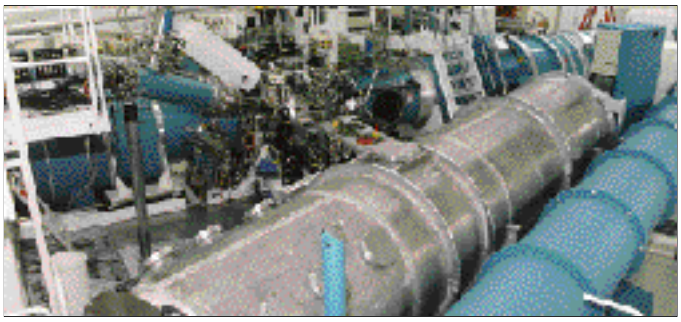
AWE DIM design.

Nova Shot Schedule Set for FY98. In November, LLNL's Council for National Security approved the FY98 schedule for the Nova laser. The approved allocation, shown below, totals approximately 900 shots during the fiscal year. LLNL's contribution to DOE's Stockpile Stewardship Program (SSP) accounts for the majority of the shots. Most of the essential Nova-scale target ignition physics experiments in support of ignition demonstration on NIF are complete. Anew emphasis this fiscal year will be the Petawatt shots, which will be used for high-energy (2- to 8-MeV) radiography for SSP and fast ignitor research for ICF.



Distribution of Nova shots for FY98 (facility shots prorated.)

Nova 2-Beam Target Bay Conversion. The last 2-Beam experiment was performed on November 12. Completed in 1985 with shared funding from LLNL's weapons and laser programs, the 2-Beam facility evolved to support over 1,000 laser experiments in a variety of research areas, promoting novel interactions between the weapons physics and ICF communities. The 2-Beam facility will be converted into the ICF Optics Processing Development Laboratory and will be used to develop high-volume processing for optical elements, which are among the most critical components for future ICF research, including NIF. The new laboratory should be operational by late 1998.



The Nova 2-Beam facility.

For comments about content of the *Monthly Highlights*, contact Don Correll (510) 422-6784.
To get on the mailing list of the *LLNLICF Monthly Highlights, Quarterly Report,* or *Annual Report* send a request to carpenter13@llnl.gov
These reports and other LLNLICF Program information are available on our Web page at http://lasers.llnl.gov/lasers/inertial.html
Work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.